

Inventor: John C. Reed  
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5, line 30 the word "for" has been replaced with the word "forth."

The specification has been amended at page 5, line 33 to identify the amino acid sequence of the first of the two alternatively spliced exons as amino acids 957-987 of the longest NAC isoform shown in Figure 1C. Support for the amendment can be found in the specification including, for example, on page 5, lines 31-34 which teach that the nucleotide sequence of the first of the two alternatively spliced exons of the longest NAC isoform shown in Figure 1C corresponds to nucleotides 2870-2959 and is underlined; Figure 1C which shows nucleotides 2870-2959 and amino acids 957-987 as underlined; page 5, lines 29-30 which teach that the sequences shown in Figure 1C are set forth in SEQ ID Nos:1 and 2; and page 6 of the sequence listing showing that nucleotides 2870-2959 correspond to amino acids 957-987. Further support can be found at page 76, lines 27-31 which teach that the first of the two alternatively spliced exons of the full length NAC nucleotide sequence correspond to nucleotides 2870-2959.

The specification has been amended at page 21, lines 11-12 to identify the amino acid sequence of NAC $\gamma$  as including amino acids 1-956, 988-1261, and 1306-1473 of the NAC protein sequence of Figure 1C. Support for the amendment can be found on page 21, lines 13-14 which teaches that the NAC $\gamma$  amino acid sequence is listed in SEQ ID NO:4 and in the sequence listing for SEQ ID NO:4 which sets forth amino acids 1-956, 988-1261, and 1306-1473 of the NAC protein sequence of Figure 1C.

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The specification has been amended at page 21, line 19 to identify the amino acid sequence of NAC $\delta$  as including amino acids 1-956, and 988-1473 of the NAC protein sequence of Figure 1C. Support for the amendment can be found on page 21, lines 20-21 which teaches that the NAC $\delta$  amino acid sequence is listed in SEQ ID NO:6, and in the sequence listing for SEQ ID NO:6 which sets forth amino acids 1-956 and 988-1473 of the NAC protein sequence of Figure 1C.

Claim 1 has been amended to recite that the polypeptide does not comprise amino acids 957-987 of SEQ ID NO:2. Support for the amendment to claim 1 can be found in the specification including, for example, on page 5, lines 29-34, as amended; page 21, lines 13-20 as amended; Figure 1C; and SEQ ID NOS:1, 2, 4 and 6, as set forth above.

A marked-up version of the paragraph on page 5 and 6 of the specification and starting at line page 5, line 29; the paragraph on page 20 and 21, starting at page 20, line 29; and claim 1, showing the amendments is provided in Appendix A, attached hereto. As set forth above, the amendments are fully supported by the specification and do not introduce new matter. Accordingly, entry of the amendments is respectfully requested.

#### CONCLUSION

In light of the Amendments and Remarks herein, Applicants submit that the claims are now in condition for

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allowance and respectfully request a notice to this effect.  
Should the Examiner have any questions, she is invited to call  
the undersigned agent or Cathryn Campbell.

Respectfully submitted,

  
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**APPENDIX A**

Marked up version of the paragraph on page 5 and 6 of the specification and starting at line page 5, line 29:

Figure 1C shows the cDNA and amino acid sequence of the longest NAC isoform (also set forth [**for**] in SEQ ID NOS:1 and 2). The nucleotide sequences of the two alternatively spliced exons (nucleotides 2870-2959 , and 3784-3915, respectively, and amino acids 957-987 [**918-947**] and 1262-1305) are underlined. The positions for the P-loop (Walker A) and Walker B of NB-ARC domain are indicated. The LRR repeats are in bold letters (amino acids 808-948), and the CARD domain is in bold underlined letters (amino acids 1373-1473) .

Marked up version of the paragraph on page 20 and 21, starting at page 20, line 29:

Isoforms of the NAC proteins are also provided which arise from alternative mRNA splicing and may alter or modify the interactions of the NAC protein with other proteins. For example, three novel isoforms of NAC are provided herein and designated: NAC $\beta$ , NAC $\gamma$  and NAC $\delta$  (set forth as SEQ ID Nos:1, 3 and 5, respectively). The amino acid sequence and the portion of cDNA encoding the amino acid sequence of NAC $\beta$  is shown in Figure 1C, and the NAC $\beta$  cDNA and amino acid sequences are listed as SEQ ID NOS: 1 and 2, respectively. NAC $\beta$  represents the NAC splice

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variant in which both splice regions are present in the translated polypeptide, thereby including the nucleic acids 1-4422 of the NAC cDNA sequence and amino acids 1-1473 of the NAC protein sequence of Figure 1C. NAC $\gamma$  represents the NAC splice variant in which neither splice region is present in the translated polypeptide, thereby including the nucleic acids 1-2869, 2960-3783, and 3916-4422 of the NAC cDNA sequence and amino acids 1-956 **[1-917]**, 988-1261 **[948-1261]**, and 1306-1473 of the NAC protein sequence of Figure 1C. The NAC $\gamma$  cDNA and amino acid sequences are listed as SEQ ID NOS:3 and 4, respectively. NAC $\delta$  represents the NAC splice variant in which only the more carboxy-terminal splice region is present in the translated polypeptide, thereby including the nucleic acids 1-2869, and 2960-4422 of the NAC cDNA sequence and amino acids 1-956 **[1-917]**, 988-1473 **[948-1473]** of the NAC protein sequence of Figure 1C. The NAC $\delta$  cDNA and amino acid sequences are listed as SEQ ID NOS:5 and 6, respectively.

Marked up version of claim 1:

1. (Thrice amended) An isolated nucleic acid molecule encoding a NB-ARC and CARD containing protein (NAC), comprising a nucleotide sequence encoding a polypeptide having at least 80% identity to SEQ ID NO:4 or SEQ ID NO:6, or the complement of said nucleotide sequence,  
wherein said polypeptide does not comprise amino acids 957-987 **[918-947]** of SEQ ID NO:2, and

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wherein said polypeptide associates with SEQ ID NO:2 or  
with Apaf-1.